

Retrospective Assessment of the Safety and Efficacy of Percutaneous Microwave Ablation in the Management of Hepatic Lesions

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Abstract : Background: The majority of patients with hepatocellular carcinoma (HCC) are not suitable for curative treatment, in the form of surgical resection or transplantation, due to tumour extent and underlying liver dysfunction. In these non-resectable cases, a variety of non-surgical therapies are available, including microwave ablation (MWA), which has shown increasing popularity due to its low morbidity, low reported complication rate, and the ability to perform multiple ablations simultaneously. Objective: The aim of this study was to evaluate the validity of MWA as a viable treatment option in the management of HCC and hepatic metastatic disease, by assessing its efficacy and complication rate at a tertiary hospital situated in Westmead (Australia). Methods: A retrospective observational study was performed evaluating patients that underwent MWA between 1/1/2017-31/12/2018 at Westmead Hospital, NSW, Australia. Outcome measures, including residual disease, recurrence rates, as well as major and minor complication rates, were retrospectively analysed over a 12-months period following MWA treatment. Excluded patients included those whose lesions were treated on the basis of residual or recurrent disease from previous treatment, which occurred prior to the study window (11 patients) and those who were lost to follow up (2 patients). Results: Following treatment of 106 new hepatic lesions, the complete response rate (CR) was 86% (91/106) at 12 months follow up. 10 patients had the residual disease at post-treatment follow up imaging, corresponding to an incomplete response (ICR) rate of 9.4% (10/106). The local recurrence rate (LRR) was 4.6% (5/106) with follow-up period up to 12 months. The minor complication rate was 9.4% (10/106) including asymptomatic pneumothorax (n=2), asymptomatic pleural effusions (n=2), right lower lobe pneumonia (n=3), pain requiring admission (n=1), hypotension (n=1), cellulitis (n=1) and intraparenchymal hematoma (n=1). There was 1 major complication reported, with pleuro-peritoneal fistula causing recurrent large pleural effusion necessitating repeated thoracocentesis (n=1). There was no statistically significant association between tumour size, location or ablation factors, and risk of recurrence or residual disease. A subset analysis identified 6 segment VIII lesions, which were treated via a trans-pleural approach. This cohort demonstrated an overall complication rate of 33% (2/6), including 1 minor complication of asymptomatic pneumothorax and 1 major complication of pleuro-peritoneal fistula. Conclusions: Microwave ablation therapy is an effective and safe treatment option in cases of non-resectable hepatocellular carcinoma and liver metastases, with good local tumour control and low complication rates. A trans-pleural approach for high segment VIII lesions is associated with a higher complication rate and warrants greater caution.

Keywords : hepatocellular carcinoma, liver metastases, microwave ablation, trans-pleural approach

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